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We *Can* Eradicate Swine Diseases

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STATISTICS INDICATE THAT four out of ten pigs born alive never go to market.[1] And the six survivors are often marketed at an economic disadvantage because of diseases that retard their growth. Articles such as "Has Disease Undermined the Swine Industry?"[2], "Are your Pigs worth a Penny?"[3] and "We Have Too Many Sick Hogs"[4] point out how seriously the present swine disease situation is viewed by those close to and interested in the swine industry. As veterinarians or prospective veterinarians, we have a definite interest in good animal health and thus must be concerned about the seriousness of swine diseases. Any and all means of disease control which our profession can apply to relieve the swine industry should be given careful consideration. It is the purpose of this article to acquaint the veterinary student with a new and effective means of swine disease eradication.

From the point of view of a conventional approach to control of swine disease, the task seems insurmountable. To study every disease that may afflict swine, determine the causative agent and develop specific chemotherapy or immunizing procedure becomes an endless and perhaps inefficient job. Because the task seems insurmountable, the prevailing philosophy has come to be an acceptance of diseases among swine as a natural and inescapable hazard. It is not, however, a philosophy we have to accept.

An exception to the live-with-disease philosophy has been made for foot and mouth (F & M) disease, which has been completely eradicated from the United States on several occasions. Because F & M is so drastic in its consequences, drastic means of control have been instituted — isolation, limited movement of stock and elimination of diseased animals. While it may not be economical to apply this method to many other livestock diseases, it is a good example of effective disease control.

Recent research (5,6,7) has produced new concepts which suggest possible means of eradication of swine diseases based in part on the fundamentals used to control F & M disease. The successful application of the technics involved will depend largely on the veterinary profession and will require careful consideration by the veterinary student who has learned well the fundamentals involved. Regardless of the interest and skill of the veterinarian, however, these technics will work only if the producer is interested enough to work wholeheartedly with his veterinarian in putting the principles into practice.

Nature has provided a way to rid swine of many, if not all, serious disease when coupled with the surgical and technical skills which are a part of veterinary education and training. After the first 30 days of embryonic life, each developing pig is

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encased in individual complicated placental tissues which function not only to nurture the pig but also to protect him from infections common to his dam. Removal of pigs from these protective casings can be accomplished several days before normal parturition by Caesarean section or hysterectomy. Such pigs, with possible rare exceptions, are free of disease and may be raised quite simply in a specialized environment until adequately conditioned to be placed on a farm.

Because the newborn pig normally depends on antibody from colostrum to protect it against diseases common to its dam's environment, the main requirement in raising pigs taken by Caesarean section or hysterectomy is an isolated environment to prevent exposure to disease. Recently a 10-pig litter brooder has been devised which will meet the environmental requirements for raising disease-free pigs up through three weeks, preparatory to placing them on the farm. These brooders are basically closed rectangular metal boxes with false expanded metal bottoms for the pigs. Air passing into and out of the brooders is filtered through bacteria-freeing mediums to limit the bacteria the pigs inhale. The rooms in which the brooders are housed are kept sufficiently warm to meet the requirements of the pigs. A milk diet is introduced through a closed system into built-in troughs. It is pumped into the brooder at 3-hour intervals, as governed by an electric timer clock.

Obviously, the type of equipment necessary to produce disease-free pigs cannot be bought for the average farm. It should be possible, however, to develop specialists to clean up stocks for the swine breeder by returning to him clean 3-week-old pigs to replace his brood stock. Usefulness of the technics and economics will dictate developments along these lines.

The literature on nutrition of the baby pig indicates that heavy mortalities invariably occur among pigs which do not nurse their dams, and the implication is that colostrum is essential for survival. Were this true, merely providing a disease-free environment for the pigs would be quite ineffective. In our experience with pigs obtained by hysterectomy and maintained in a disease-free environment, feeding is not a serious problem. Pigs fed a diet of condensed milk (homogenized, with vitamin D added) and a mineral supplement gain as rapidly as pigs that have nursed their dams. Therefore, we conclude that the problem is more mechanical and environmental than nutritional. Pigs fed small volumes of milk at frequent intervals have responded with good early gains in weight.

To maintain such pigs in a healthy condition requires continued isolation from other swine, no matter how healthy they may appear, and from contaminated premises, objects or feed. Contrary to general opinion, however, these artificially raised pigs are not "hot house" animals as far as ordinary farm conditions are concerned. There is danger, however, from placing such pigs with apparently healthy swine that may nevertheless be carriers of disease. Artificially reared pigs may become sick when housed with so-called normal swine. Without the exposure, they grow vigorously under management simple enough for the average farmer to carry out effectively.

Should the general technics outlined above be put into use in swine disease eradication, the responsibility of the veterinarian will become greater than merely knowing how to free his client's stock from disease. It becomes one of knowing how *not* to spread disease from farm to farm himself, as well as one of giving clients advice on how to conduct their movements to keep their stock clean. Such simple things as scrubbing and disinfecting boots after each farm visit must be strictly observed. A pair of boots for the farmer to wear only in the hog barn and lot is a good investment, even though it may seem frivilous. Clients should be discouraged from visiting livestock sales barns and hog lots on other farms. Introduction of other swine into the herd, except swine handled as the clean foundation stock, should not be permitted.

There has been considerable buck passing on who is most responsible for the

appalling situation of swine diseases. Since the veterinarian is the logical champion of disease control, he has often been made the scape-goat. The cry has been for new and more effective methods of disease eradication and control, although those known and already available have not been widely used. It would appear we now have the technics to eradicate disease at least from foundation brood stocks of swine. When the swine industry realizes the job can be done and sincerely chooses to begin eradication of swine diseases, the veterinary profession can help carry out an effective program.

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Daily injection of 5 mg. of progesterone, intramuscularly, will delay effectively the onset of estrum until several days after the last injection. This action seems to cause no permanent damage or interference with breeding, for these animals eventually come in heat and conceive normally. This technique is used to delay estrum in bitches, so as to whelp pups at a certain time of the year, or to permit showing or hunting a bitch due to come in heat at the wrong time.

Except for vultures and parrots, wild geese live longer than any other birds. Authentic records give them as much as 70 years.

An excessive intake of urea is poisonous because of the ammonia produced from it in the rumen. Studies indicate that urea should not be fed at a greater rate than one percent of the total dry matter of the ration or three percent of the concentrate mixture.